THE VIRGINIA PHARMACY TECHNICIAN EXAM

STUDY GUIDE

The Virginia Pharmacy Technician Exam ("Exam") was developed as an objective means of measuring pharmacy technicians' knowledge of basic job responsibilities as required by Virginia law. The purpose of this Study Guide is to help pharmacy technicians prepare for the Exam. This Study Guide includes: (1) a description of the major areas covered on the Exam and the relative weight given to each area; (2) a list of key words to help you prepare for the exam; (3) a list of selected statues and regulations affecting pharmacy technicians in Virginia; (4) sample exam questions and answer key; and (5) information about registering for the Exam.

1. TOPICS COVERED ON THE EXAM

The Exam will consist of 50 questions. As with all standardized tests, this Exam contains a few questions that are being pretested for possible use on future exams. Pretesting additional questions is necessary to assure that all items perform properly and that new versions of the Exam can be used in the future. Therefore, 45 of the 50 questions will be scored. All 45 of the questions that will be graded have been pretested to determine their reliability and validity and accepted by an expert panel approved by the Virginia Board of Pharmacy. The pretest items will not be identified for the candidate in order to assure that test statistics are valid. A score of 75% or greater is needed to pass. (In other words, at least 34 of the 45 questions graded must be answered correctly to achieve a passing score.) There will be one hour for the Exam.

As with all standardized tests, there are multiple versions of this Exam. The various versions are carefully equated to assure that all have similar degrees of difficulty.

Questions on the Exam can be divided into 16 categories as outlined below. Because various types of questions are being pretested, the exact number of questions from each category cannot be predicted in advance. Following is a list of the 16 major areas covered on the Exam and educational objectives that you should attempt to master. While this is not represented as an exhaustive list of everything you should know, being able to satisfy these educational objectives and the related concepts will help you prepare for the Exam.

Topic	Number of Questions
Technician Duties and General Information • Describe the functions a technician may perform. • Describe the pharmacy duties that only a pharmacist may perform • Explain the importance of maintaining patient confidentiality. • Identify the federal and state agencies and regulations affecting pharmacy.	4 or 5

Topic	Number of Questions
Dosage Forms • Identify the various types of medication dosage forms.	3 or 4
Prescription Containers and Closures • Compare and contrast the various types of prescription containers. • Describe the requirements for using child-resistant containers.	2 or 3
Generic Substitution • Understand the state's law regarding generic substitution.	3 or 4
Information on Prescription Stock Bottle Labels • Describe the information found on stock bottle labels and how to use it. • Describe appropriate strategies for avoiding mix-ups among easily-confused products.	2 or 3
Controlled Substances • Differentiate among the various controlled substances schedules and rules for filing controlled-substance prescriptions. • Understand the rules and regulations governing refills, partial refills, and transfers of controlled substances. • Follow the correct procedures for handling Schedule V sales.	3 or 4
Prescribers • Identify the professions that may prescribe medications and any limitations on their prescribing authority.	2 or 3
Receiving Prescriptions • List the information required on completed prescription forms. • Describe the requirements for prescriptions transmitted orally, by facsimile, and transferred among pharmacies.	3 or 4
Interpreting Directions for Use • Correctly translate prescribers' abbreviations and symbols into directions for prescription labels	4 or 5
Calculations • Use the four systems of measurement used in pharmacies. • Calculate prescription quantities and days supply. • Calculate the proper doses of medications.	3 or 4
Patient Interaction • Communicate patients' telephone requests to pharmacists. • Recognize the types telephone calls a technician cannot handle.	4 or 5
Federal Privacy Requirements • Understand the main concepts of the federal privacy rules that impact the technician's role. • Describe certain procedures that must be followed during the dispensing process to comply with the privacy regulations. • Communicate with patients and healthcare professionals in compliance with the privacy rules. • Understand the basic patient rights as described in the privacy regulations that may affect the technician's role.	2 or 3

Topic	Number of Questions
The Dispensing Process • Use correct procedures to dispense prescriptions. • Properly label prescriptions. • Describe the requirements for refilling prescriptions. • File prescriptions properly.	4 or 5
Alternate Drug Delivery Systems • Describe the drug-distribution systems in hospitals and long-term care facilities. • Follow the proper procedures for repackaging medications. • Properly label repackaged medications. • Calculate the expiration date for repackaged medications. • Use proper procedures for filling and delivering unit-dose carts.	2 or 3
Sterile Product Compounding • Recognize differences between sterile product prescriptions and other types of prescriptions. • Use correct procedures to maintain the sterile product compounding environment. • Label sterile product prescriptions accurately. • Comply with the Virginia Board of Pharmacy's regulations related to compounding of sterile pharmaceutical products.	2 or 3
Most Frequently Prescribed Medications • Match the generic and trade names of the top 50 drug products as listed on the ICPT website.	2 or 3
TOTAL QUESTIONS	50

2. KEY WORDS

Following is a list of key words that you should know for each of the first 15 major areas listed above. While this is not represented as an exhaustive list of every term you should know, knowing each of these terms and the related concepts help you prepare for the Exam. You may find it helpful to make a list of definitions for words and terminology that may be new to you.

Technician Duties and General Information

Confidentiality

Consumer Product Safety Commission (CPSC)

Controlled Substances Act (CSA)

Drug Enforcement Administration (DEA)

Food and Drug Administration (FDA)

Over the counter (OTC) drugs

Pharmacy security

State Board of Pharmacy

Technician duties

Dosage Forms

Aerosols

Capsules

Chewable tablets

Controlled-released products

Creams
Dosage forms
Elixirs
Emulsions
Enteric-coated tablets
Gels
Lotions
Ointments
Ophthalmic preparations

Otic preparations
Parenteral medications
Reconstituting
Solutions
Sublingual tablets
Suppositories
Suspensions
Syrups
Transdermal patches

Prescription Containers and Closures
Applicator bottles
Child-resistant caps

Closures
Dropper bottles

Generic Substitution
Brand-name drugs
Dispense as written

Generic drugs
Multiple-source drugs

Information on Prescription Stock Bottle Labels
Controlled substance mark
Expiration date
Prescription-only symbol (Rx)
Legend Statement

Lot number
National Drug Code (NDC) number
Stock bottle label

Controlled Substances
DEA number
Emergency prescriptions
Filing prescription forms
Partial filling
Refilling prescriptions
Schedule I (C-I)
Schedule II (C-II)
Schedule III (C-III)

Schedule IV (C-IV)
Schedule V (C-V)
Schedule VI (C-VI)
Schedule V records log
Storing prescription stock
Transfer warning statement
Transferring medications
Transferring prescriptions

Prescribers
Dentist (DDS or DMD)
Nurse practitioner (NP)
Optometrist (OD)
Osteopathic physician (DO)

Physician (MD)
Physician assistant (PA)
Podiatrist (DPM)
Veterinarian (DVM)

Receiving Prescriptions
Facsimile prescriptions
Oral Prescriptions

Transferred prescriptions

Interpreting Directions for Use

aa or āā	disp	NKA	qod
aa	DTD	noc	Rx
ac	EC	NR	s̄
ad	el or elix	od	SA
ad lib	expect	oj	SC, subQ, or SQ
aff	fl	ophth	Sig
AM	fl oz	os	SL
ANX	g or gm	otic	SOB
app	gr	ou	sol
aq	gtt(s)	oz	SR
aq	h, hr or °	p	ss or s̄s̄
as	HA	pc	stat
ASAP	HBP	pc & hs	supp
au	hs	ped	susp
BC	IM	PM	syr
bid	IV	po	T or tbsp
BP	kg	pr	t or tsp
c or c̄	L	prn	tab(s)
cap(s)	LA	pulv	tid
cc	loc	q	tinc
cpd or cmpd	lot	qd	TR
cr	mcg or μg	qh	UD or ut dict
d	mEq	q4h	ung or oint
DAW	mg	qhs	vag
dis	ml	qid	w or wk

Calculations

Apothecary system
Avoirdupois system
Cubic centimeter (cc)
Dram (dr or ʒ)
Fluid dram (ʒ)

Fluid ounce (fl oz or ℥)
Gallon (gal)
Grain (gr)
Gram (g)
Household measures

Kilogram (kg)
Liter (L)
Metric system
Microgram (mcg)
Milligram (mg)
Milliliter (mL)
Ounce (oz)
Pint (pt)
Quart (qt)

Patient Interaction

Calls that technicians can handle   Calls that technicians cannot handle

Federal Privacy Requirements

Acknowledgement signature
Covered entity
Department of Health and Human
    Services
Electronic signature capture
Health Insurance Portability and
    Accountability Act (HIPAA)

Minimum necessary rule
Minor
Notice of privacy practices
Privacy officer
Protected health information

The Dispensing Process

Automatic counting machines
Auxiliary labels
Computer checks
Conical graduate
Contraindications
Counting trays
Daily log
Distilled water
Drug interactions
Gelatin capsules
Graduated cylinder
Hypodermic needle and syringe log
Label requirements

Medication history
Meniscus
NDC number
Over-the-counter (OTC) medications
Patient profiles
Prescription form requirements
Prescription history
PRN refills
Reconstituting powders
Reconstituting tube
Refill regulations
Schedule V sales record log

Alternative Drug Distribution Systems

24-hour exchange
7-day exchange
Back-up dose
Blister pack
Compliance aids
Dosage spoon
Dropper
Long-term care facility (LTCF)
Lot or control number

Medication cart
Patient drawer or tray
Punch card
Repackaging
Returning unused medication
Unit-dose system
USP-NF Class B packaging materials
USP-NF Class C packaging materials

Sterile Product Compounding

Ampule
Aseptic technique
Biological safety cabinet
Biomedical waste disposal
Chemotherapy (cytotoxic drugs)
Clean room
Compounding
Dextrose 5% in water (D5W)
Diluent
Filter needle

High efficiency particulate air (HEPA)
    filter
Horizontal-laminar flow hood
Intramuscular (IM)
Intravenous (IV)
Labeling requirements
Large-volume parenteral
Multiple-dose vial
Parenteral medications
Piggyback

Route of administration   Sterile product risk levels
Sharps   Subcutaneous (SubQ, SQ or SC)
Small-volume parenteral   Total parenteral nutrition (TPN)
Sterile drug products   Vertical laminar-flow hood

3. SELECTED STATUTES AND REGULATIONS

Following is a list of selected statutes and regulations that you should know for the Exam.
This should not be considered to be a comprehensive list of all statutes and regulations
that you should know as a pharmacy technician. Explanations of these statutes and
regulations should be a part of the various Board-approved training programs. In
addition, the text for each of these statutes and regulations is available from the Virginia
Board of Pharmacy's website (www.dhp.state.va.us/pharmacy).

Regulations
18VAC 110-20-170 – Required minimum equipment
18VAC 110-20-200B – Storage of drugs, devices, and controlled paraphernalia
18VAC 110-20-240 – Manner of maintaining record, prescriptions, inventory records
18VAC 110-20-255 – Other dispensing records
18VAC 110-20-270 – Dispensing of prescriptions, acts restricted to pharmacists;
        certification of completed prescriptions
18VAC 110-20-275 – Delivery of dispensed prescriptions
18VAC 110-20-280 – Transmission of a prescription by facsimile machine
18 VAC 110-20-285 – Electronic Transmission of prescriptions from prescriber to
        pharmacy
18VAC 110-20-290 – Dispensing of Schedule II drugs
18VAC 110-20-320 – Refilling of Schedule III through VI prescriptions
18VAC 110-20-330 – Labeling of prescriptions as to content and quantity
18VAC 110-20-350 – Special packaging
18VAC 110-20-355 – Pharmacy repackaging of drugs; records required; labeling
        requirements
18VAC 110-20-360 – Issuing a copy of a prescription that can be refilled
18VAC 110-20-370 -- Issuing a copy of a prescription that cannot be refilled
18VAC 110-20-400 – Returning of drugs and devices
18VAC 110-20-411-416 – Compounding sterile pharmaceutical products

Statutes
§ 54.1-2952.1 – Prescription of certain controlled substances and devices by physician
        assistant
§ 54.1-2957.01 -- Prescription of certain controlled substances and devices by nurse
        practitioners
§ 54.1-3320 – Acts restricted to pharmacists
§ 54.1-3404 – Persons required to keep records of drugs; contents and form of record
§ 54.1-3408 – Professional use by practitioners
§ 54.1-3408.03 – Dispensing of therapeutically equivalent drug products
§ 54.1-3408.01 – Requirements for prescriptions

§ 54.1-3410 – When pharmacist may sell and dispense drugs

§ 54.1-3410.2 – Compounding; pharmacists; authority to compound under certain
conditions; labeling and record maintenance requirements

§ 54.1-3411 – When prescriptions may be refilled

§ 54.1-3412 – Date of dispensing; initials of pharmacist; automated data processing
system

§ 54.1-3416 – No prescriptions for preparations listed pursuant to Schedule V

§ 54.1-3427 – Dispensing drugs without safety closure container

§ 54-1-3467 – Distribution of hypodermic needles or syringes, gelatin capsules, quinine
or any of its salts

§ 54.1-3468 – Conditions to dispense device, item ,or substance; records

4. REGISTERING FOR THE EXAM

You can take the Virginia Pharmacy Technician Exam at any of the conveniently located
PSI/LaserGrade Testing Centers located throughout Virginia as well as neighboring states and
the District of Columbia. There are 6 testing centers in Virginia and most are open
6 days a week. To find a site near you, go to the LaserGrade website at
www.lasergrade.com. Just put in your zip code and you will get a list of the sites closest
to you. Alternatively, you may call LaserGrade at 1-800-211-2754 and they will help
you find the most convenient site. You will receive complete instructions for finding the
test center and taking the Exam

Registration is easy and only takes a few minutes. Just call LaserGrade at 1-800-211-
2754. There is no long pre-registration requirement or waiting period – you can usually
take the Exam a day or two after registering. The fee for the Exam is $65. Results are
provided immediately upon completion of the Exam. **Beginning July, 1, 2008, the exam
fee will increase to $70.**

If you require a special testing accommodation under the *Americans with Disabilities Act*
(ADA), please call the Virginia Board of Pharmacy at 804.662.991. Any requested
accommodations due to disabilities must be made directly to the board with supporting
documentation from the physician who has diagnosed the disability. If the request is
approved by the board, reasonable accommodations will be made at no additional cost.

5. EXAM SCORING

Exam results for successful candidates. The Exam is scored immediately and successful
candidates are given an official report by PSI/LaserGrade immediately after completing the
Exam indicating that they passed the Exam.   Candidates may use this report to provide
evidence to the Virginia Board of Pharmacy that they passed the Exam. The Board
verifies all passing scores with ICPT.

Exam results for unsuccessful candidates. The purpose of the Exam is to provide summative assessment (i.e., to determine whether an individual has achieved a certain level of competency). It is not designed for formative assessment (i.e., to give the candidate feedback). ICPT does, however, provide diagnostic reports to help unsuccessful candidates focus their study time so they can successfully retake the Exam. This diagnostic report will indicate how the candidate performed on each section of the Exam. Candidates who do not pass the Exam will be allowed to retake the Exam after two weeks. Since there are multiple versions of the Exam, candidates who take retake the Exam will receive a different, but equivalent, set of questions.

Scoring. The passing score is based on a standard of performance that experts in the profession have determined are acceptable for this certification program. Specifically, ICPT uses a modified Angoff procedure to determine the passing score. With this method a panel of experts independently estimates the percentage of qualified candidates who would correctly answer each item. The panelists' ratings are averaged to determine the passing score (also known as the "cut score"). The overall passing score is determined by averaging the individual ratings. The extreme high and low ratings can be deleted to decrease the variance without affecting the median score. The passing score is not based on a curve.

Equating and scaling. To protect the integrity of the Exam, multiple versions of the Exam are used and the sample of questions taken from the test bank changes continuously as well. Because different administrations of the Exam are made up of different combinations of questions, it is important to assure that these different versions provide an equal challenge to everyone. The careful selection of items assures that different versions of the Exam test the same content areas. The overall passing score is determined by averaging the individual ratings. The Exam also uses statistical methods to equate and scale Exam scores.

Equating is essentially a statistical method of selecting the raw score on each test that would provide the same probability of passing. In other words, it is a way of calibrating different versions of the Exam to assure that they provide an equal challenge. For example, a raw score of 75 may be determined to be a passing score on one version of the Exam and a 74 may be determined to be the equivalent passing score on a more difficult version. A scale is a score-reporting technique that translates the different raw scores into a standard score. For example, the scores that may be earned on the Exam range from 0 to 100 and the passing score is 75. The minimum passing raw scores are then converted to 75 for all versions of the Exam. If two different versions of the Exam have different cut scores (e.g., a raw score of 75 on one version and a raw score of 74 on another) then both are converted so that 75 is the passing score. Reporting only raw scores could cause confusion because the results of one test administration may be difficult to compare with another that does not have exactly the same difficulty or same cut score. Equating and scaling procedures are used in most certification programs because they are easy and reliable, commonly accepted as standard procedures in certification programs, psychometrically sound and are legally defensible.

Rotating and retiring test items. The integrity of the Exam is further protected by rotating and retiring test items on a regular basis.   Candidates who have to retake the Exam several times would not see the same Exam again because they would be assigned to all of the different versions before they could retake the same version.   During the time before retaking the same version, most of the questions would have changed. All versions of the Exam, however, will be consistent with the Exam blueprint and will be equated. In addition to rotating and retiring test items, the order of test items and answers are scrambled and numbers for calculation questions are changed on a frequent basis.

Independent audit by expert in psychometrics.   An independent, unbiased expert in psychometrics is retained to audit the Exam procedures, content and Exam items. This audit has found that the Exam meets all certification program standards. It is the intent of ICPT to continue conducting independent audits of the Exam.

Appeals and rescoring. Candidates who wish to appeal their test results or a specific test item will be allowed to do so by completing a Score Appeal Form available on the website and remitting a nominal examination review fee. The Director of Education will respond within ten working days.